

Notice of Allowability

Application No.

10/712,400

Examiner

Henry S. Hu

Applicant(s)

GERVAIS ET AL.

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Election of December 5, 2005.
2. ☒ The allowed claim(s) is/are 12-22.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 10-21-2004
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with **Karl R. Hermanns (Registration # 33,507, tel. 206 622-4900) on January 13, 2006** to amend parent Claim 12, to cancel non-elected Claims 23-48 (Group II and Group III), and to correct some informalities in specification as following:

Claim

Claim 12 at lines 2-3 replace the phrase of "substantially free of organic solvents," with "with organic solvent contaminants at a concentration below 4 % by volume,"

Claim 12 at line 4 replace the word of "seconds⁻¹" with "second⁻¹"

Claims 23-48 cancel Claims 23-48

Specification

Page 4 at line 9 replace the word of “seconds⁻¹” with “second⁻¹”

Page 5 at line 26 replace the word of “seconds⁻¹” with “second⁻¹”

DETAILED ACTION

2. It is noted that this application **10/712,400** filed November 12, 2003 is a **DIV of 10/015,528 filed on 12/12/2001, now US Patent No. 6,679,979**. Applicants' election filed on December 5, 2005 in response to restriction requirement was received; **Group I with Claims 12-22 was elected without traverse**. The examiner accepts the **drawing with three figures in three sheets** filed with this application on November 12, 2003.

3. Along with the above examiner's amendment, parent **Claim 12** was further amended to correct the improper word of “seconds⁻¹” and to limit the organic solvent contaminants at a concentration below 4 % by volume since the language of “substantially free of organic solvents” may be indefinite and vague; while non-elected Claims 23-48 (Group II and Group III) were cancelled. **Claims 12-22** with only one independent claim (**Claim 12**) are now pending. An action follows.

Allowable Subject Matter

4. Claims 12-22 are allowed.

Art Unit: 1713

5. The following is an examiner's statement of reasons for allowance: The above claims 12-22 are allowed over the closest references:

6. *The limitation of amended parent **Claim 12** of present invention relates to a catalyst ink comprising an aqueous ionomer gel and a catalyst, where the aqueous ionomer gel is with organic solvent contaminants at a concentration below 4 % by volume, having an ionomer solid content ranging from about 4 % to about 18 % by weight of the gel and a viscosity in excess of 5,000 centipoise at a shear rate of 10 second⁻¹. See other limitations of dependent Claims 13-22.*

7. In view of the Applicants' amendment, the aqueous ionomer gel of catalyst ink in parent **Claim 12** of present invention has been twice-amended to carry three major properties as: (A) organic solvent contaminants at a concentration below 4 % by volume, (B) an ionomer solid content ranging from about 4 % to about 18 % by weight of the gel, and (C) a viscosity in excess of 5000 centipoise at a shear rate of 10 second⁻¹. It is noted that **such an aqueous ionomer gel (original Claim 1)** has been allowed in parent case.

The Notice of Allowance filed on August 12, 2003 for its parent application 10/015,528 (which is now US Patent No. 6,679,979) is hereby incorporated here by reference. In a close examination on the prior art mentioned for the allowed parent case along

Art Unit: 1713

with further examination and search on the issue of “**catalyst ink**”, the examiner found the following prior art did not teach the claimed limitation:

8. With respect to parent **Claims 1-11 in 102 rejection** in the allowed parent case, the reference **Morgan (USPG-PUB 2001/0005699)** only discloses a partially pre-vulcanized solid, semi-solid, gel, or gel-like material such as a **sulfonate ionomer, butyl rubber ionomer or an ionized crosslinked polyacrylamide gel** can be **diluted with water to any solid content** in order to be applied and dried to form the thin intermediate layer in multi-layer golf ball. Morgan further discloses the thin intermediate layer includes a responsive viscoelastic composition that exhibits an **increase in viscosity under shear forces**.

Although Morgan furthermore discloses the viscosity of materials suitable for use can be **generally below 1,000,000 poise** in order to be readily permitted mixing, a liquid of **any composition or viscosity known to those of ordinary skill in the art could be also included**. As pointed out by the Applicants, the above language is not specifically addressing to the intermediate layer. Therefore, instant Claim 12 is not anticipated by Morgan et al.

With respect to the **103 rejections on the original Claims 1-11**, the primary reference **Lim (EP 955,687)** only discloses a **slurry** for forming a catalyst layer in a proton exchange membrane fuel cell can be prepared from a method comprising the steps of (a) adding a MOH aqueous solution to a perfluorosulfonate ionomer (PFSI-H) /alcohol solution to convert it into

Art Unit: 1713

M⁺ form-PFSI, (b) adding an organic solvent with bp 20°C higher than alcohol, (c) heating to remove alcohol, and (d) adding Pd/C to form a slurry.

Although Lim further discloses **the solid content of the PFSI polymer in the slurry is 15-35 wt%, and the viscosity of the slurry is greater than 1,000 centipoise**. Lim is silent about aqueous slurry and the measurement of viscosity at shear rate of 10 second⁻¹. The secondary reference **Southwick (US 5,612,407)** only discloses that solid content in 20-80 wt% can be obtained and the viscosity is related to the molecular weight as the higher molecular weight will have higher viscosity. Therefore, all the above primary and secondary references, in combination or alone, fails to teach or fairly suggest the limitations of present invention.

9. After further examination and search, the examiner found the following prior art did not teach the claimed limitation: **Choi et al. (US 6,100,324)** only disclose ionomers and ionically conductive compositions (title). The ionomers comprise functionalized polyolefins having fluoroalkyl sulfonate pendent groups and ionically conductive compositions formed therefrom by the addition of **organic solvents** (abstract, line 1-4 and also see examples). **Choi fails to teach produce a viscosity in excess of 5000 centipoise at a shear rate of 10 second⁻¹ for an aqueous ionomer gel having a gel content of 4-18 wt%.**

10. With further search on the key issue of “**catalyst ink**” **comprising ionomer** in current **DIV** application, **Fleming et al. (US 6,159,657)** (column 1, line 15-24; column 8, line 61 – column 9, line 9), **Zheng et al. (US 6,660,449 B2)** (column 1, line 16-25; column 9, line 30-48),

Art Unit: 1713

and Wexler et al. (US 6,399,156 B1) (abstract, line 1; column 2, line 47) may have made inks or thermal imaging member agent using some kind of ionomer. However, **no metal catalyst is added or suggested**. Additionally, the claimed type of ionomer gel is not disclosed or suggested at all.

11. The key issue regarding a catalyst ink comprising an aqueous ionomer gel, which is carrying three properties as: (A) organic solvent contaminants at a concentration below 4 % by volume, (B) a solids content of 4-18 wt%, and (C) a viscosity in excess of 5000 centipoise at a shear rate of 10 second^{-1} , cannot be overcome by any or the combination of the above references, therefore, the present invention is novel.

12. As of the date of this office action, the examiner has not located or identified any reference that can be used singularly or in combination with another reference including the above references to render the present invention anticipated or obvious to one of the ordinary skill in the art. Therefore, the one independent and parent **Claim 12** is allowed for the reason listed above. Since the prior art of record fails to teach the present invention, the remaining pending **Claims 13-22** are passed to issue.

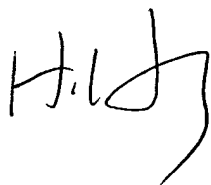
13. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

Art Unit: 1713

14. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Dr. Henry S. Hu** whose telephone number is **(571) 272-1103**. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The **fax** number for the organization where this application or proceeding is assigned is **(571) 273-8300** for all regular communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Henry S. Hu

Patent Examiner, Art Unit 1713, USPTO

January 13, 2006



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